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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,541	07/10/2003	Seng Geap Goh	70030066-1	5179

57299 7590 01/23/2009

Kathy Manke
Avago Technologies Limited
4380 Ziegler Road
Fort Collins, CO 80525

EXAMINER	
KIM, RICHARD H	

ART UNIT	PAPER NUMBER
2871	

NOTIFICATION DATE	DELIVERY MODE
01/23/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

avagoip@system.foundationip.com
kathy.manke@avagotech.com
scott.weitzel@avagotech.com

Office Action Summary	Application No.	Applicant(s)	
	10/618,541	GOH ET AL.	
	Examiner	Art Unit	
	RICHARD H. KIM	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *5,6 and 8-10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7 and 11-20* is/are rejected.

7)☒ Claim(s) *4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/09/2009 has been entered.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 7 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the limitation that the lump is "irregularly shaped". However, claim 7 states that the recess a V-shaped recess. It would seem that as a result, the lump when melted would follow the shape of the recess (V-shaped) and therefore not be "irregularly" shaped. Appropriate correction is required. The same reasoning would also apply to withdrawn claims 8 and 9.

3. Claim 7 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that

the inventor(s), at the time the application was filed, had possession of the claimed invention. An irregularly shaped lump occupying a volume that is smaller than a V-shaped recess of the substrate is not described in the specifications. The specifications only describe a V-shaped recess, but does not illustrate or describe the manner in which the lump occupies the V-shaped recess. The same reasoning would also apply to withdrawn claims 8 and 9.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3 and 11-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Murdock (US 5,853,383) in view of Nishimura (US 6,298,533 B1).

3. Referring to claim 1, Murdock discloses a device comprising a substrate (18) having a first side and a second side, the substrate defining one or more holes (13a, 13b) from the first side to the second side; and a plastic member for mounting to the first side of the substrate (col. 9, line 26, 27), the plastic member comprising a thermoplastic heat stake having a shaped tip selected such that when reformed using heat, the thermoplastic material of the shaped tip forms a lump on the substrate (col. 9, line 26-30). However, the reference does not disclose that the substrate additionally defines a recess located about the hole on the second side, wherein the lump is an irregularly shaped lump occupying a volume that is smaller than the recess of the substrate.

4. Nishimura discloses a device wherein a substrate (5) comprises a recess located about a hole on a second side, wherein the lump (23) is an irregularly shaped lump occupying a volume that is smaller than the recess of the substrate.

5. It would have been obvious to one having ordinary skill in the art at the time the invention was for the substrate to additionally define a recess located about the hole on the second side, wherein the lump is an irregularly shaped lump occupying a volume that is smaller than the recess of the substrate since one would be motivated to shorten the fabrication process (abstract). Examiner notes that Nishimura is pertinent to the problem to which the applicant is concerned with and therefore is considered relevant art.

6. Referring to claims 2 and 12, Murdock discloses a method comprising providing a substrate (18) having a first side and a second side; providing a hole (13a, 13b) in the substrate from the first side to the second side; providing a plastic member on the first side of the substrate, the mounting comprising insertion of the thermoplastic heat stake into the hole in the substrate; and heating a shaped tip of the thermoplastic heat stake whereby the thermoplastic material of the shaped tip is melted (col. 9, lines 26-30). However, the reference fails to disclose providing a recess about the hole on the second side, and wherein the melted shaped tip is melted to form a lump having an irregular shape that is confined inside the recess of the substrate without extending up to a level corresponding to the planar surface of the second side, thereby allowing surface mounting of the surface mount module using the planar surface of the second side without additional work being carried out on the lump, wherein the shaped tip is selected to have a volume whereby when heated the thermoplastic material of the shaped tip is deformed and confined inside the recess of the substrate.

7. Nishimura discloses a method of providing a recess about the hole on a second side, wherein the melted shaped tip is melted to form a lump (23) having an irregular shape that is confined inside the recess of the of a substrate without extending up to a level corresponding to the planar surface of the second side, thereby allowing surface mounting of the surface mount module using the planar surface of the second side without additional work being carried out on the lump, wherein the shaped tip is selected to have a volume whereby when heated the thermoplastic material of the shaped tip is deformed and confined inside the recess of the substrate (abstract, Fig. 9).

8. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a process of providing a recess about the hole on the second side, and wherein the melted shaped tip is melted to form a lump having an irregular shape that is confined inside the recess of the substrate without extending up to a level corresponding to the planar surface of the second side, thereby allowing surface mounting of the surface mount module using the planar surface of the second side without additional work being carried out on the lump, wherein the shaped tip is selected to have a volume whereby when heated the thermoplastic material of the shaped tip is deformed and confined inside the recess of the substrate since one would be motivated to shorten the fabrication process (abstract).

9. Referring to claim 3, Murdock discloses that the substrate is a printed circuit board (18) and the second side of the PCB is substantially planar for configuring the module as a surface mounted module.

10. Referring to claim 11, Murdock discloses the method further comprising mounting the surface mount module (16) upon a printed circuit board using surface mounting techniques.

11. Referring to claims 13-15, Murdock discloses a device comprising a substrate (18) having a mounting hole (13a, 13b) extending from a first surface to a second surface; and a component that is mountable upon the first surface of the substrate, the component comprising a thermoplastic heat stake configured for insertion into the mounting hole in the substrate (col. 9, lines 26-30). However, the reference fails to disclose that the mounting hole is further defined by a recess located in the second surface; and the thermoplastic heat stake has a tip with a material volume that is selected for deforming under heat to produce an irregularly shaped lump that is located wholly inside the recess and substantially below the plane of the second substrate, thereby securing the component to the substrate and allowing surface mounting of the module using the second surface, wherein the material volume is selected such that the lump is wholly confined inside the recess without requiring removal of a portion of the material after application of heat, wherein the second surface is substantially planar so as to provide surface mounting capability to the module.

12. Nishimura discloses a device wherein the mounting hole is further defined by a recess located in the second surface; and the thermoplastic heat stake has a tip (23a) with a material volume that is selected from deforming under heat to produce an irregularly shaped lump (23) that is located wholly inside the recess and substantially below the plane of the second surface, thereby securing the component to the substrate (5) and allowing surface mounting of the module using the second surface, wherein the material volume is selected such that the lump (23) is wholly confined inside the recess without requiring removal of a portion of the material after application of heat, wherein the second surface is substantially planar so to provide surface mounting capability to the module (Fig. 9, abstract).

13. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a device wherein the mounting hole is further defined by a recess located in the second surface; and the thermoplastic heat stake has a tip with a material volume that is selected for deforming under heat to produce an irregularly shaped lump that is located wholly inside the recess and substantially below the plane of the second substrate, thereby securing the component to the substrate and allowing surface mounting of the module using the second surface, wherein the material volume is selected such that the lump is wholly confined inside the recess without requiring removal of a portion of the material after application of heat, wherein the second surface is substantially planar so as to provide surface mounting capability to the module since one would be motivated to shorten the fabrication process (abstract).

14. Referring to claims 16-18, Murdock and Nishimura disclose the device previously recited, but does not disclose the device wherein the substrate and the components are part of an electronic display, wherein the component is a light diffusing element and wherein the light diffusing element is a plastic light diffusing element.

15. It would have been obvious to one having ordinary skill in the art at the time the invention was made for the substrate and the components to be part of an electronic display, wherein the component is a light diffusing element and wherein the light diffusing element is a plastic light diffusing element since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham,* 2 USPQd 1647 (1987). Furthermore, employing a light diffusing element attached to a printed circuit board is well known in the art in an electronic display. Murdock and Nishimura et

al., in combination, disclose the teaching of securely attaching a device to a printed circuit board. Therefore, the applied references are relevant to the claimed invention.

16. Referring to claim 19, Murdock discloses that the substrate is a PCB (18).

17. Referring to claim 20, Murdock discloses the device previously recited, but fails to disclose that the thickness of the PCB is approximately 1.6 mm.

18. It would have been obvious to one having ordinary skill in the art at the time the invention was made for the thickness of the PCB is approximately 1.6 mm since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art. *In re Boesch,* 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

19. Claim 4 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD H. KIM whose telephone number is (571)272-2294. The examiner can normally be reached on 9:00-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Richard H Kim/
Primary Examiner, Art Unit 2871